

IN THE CLAIMS:

The status of each claim that has been introduced in the above-referenced application is identified in the ensuing listing of the claims. This listing of the claims replaces all previously submitted claims listings.

Please cancel claims 30-44, 46, 48-64, 66-74, and 105-107 without prejudice or disclaimer.

1. (Currently amended) A sample separation apparatus, comprising:
a substrate comprising at least one of silicon, gallium arsenide, and indium phosphide;
matrices formed in said substrate, said matrices comprising at least two distinct, unconnected porous regions, each of said at least two porous regions extending at least partially across said substrate; and
at least one detector comprising a thermal detector, a field effect transistor, or a voltage-application component and a current-detection component fabricated on said substrate in communication with at least one of said at least two porous regions.
2. (canceled)
3. (previously presented) The sample separation apparatus of claim 1, wherein each of said at least two porous regions comprises a capillary column.
4. (previously presented) The sample separation apparatus of claim 1, wherein each of said at least two porous regions linearly traverses said substrate.
5. (previously presented) The sample separation apparatus of claim 1, wherein one of said at least two porous regions extends only partially across said substrate.
6. (previously presented) The sample separation apparatus of claim 5, wherein one of said at least two porous regions comprises a control column.

7. (previously presented) The sample separation apparatus of claim 1, further comprising a reaction region immediately situated along a length of and contiguous with at least one of said at least two porous regions.

8. (original) The sample separation apparatus of claim 7, wherein said reactant region comprises a capture component.

9. (previously presented) The sample separation apparatus of claim 7, wherein said reaction region is situated at a predetermined distance from an end of said at least one porous region.

10. (previously presented) The sample separation apparatus of claim 5, further comprising reaction regions situated immediately along lengths of each of said at least two porous regions.

11. (previously presented) The sample separation apparatus of claim 10, wherein a distance between a first of said reaction regions and an end of a first of said at least two porous regions is substantially the same as a distance between a second of said reaction regions and an end of a second of said at least two porous regions.

12. (canceled)

13. (previously presented) The sample separation apparatus of claim 1, wherein said at least one detector comprises a thermal detector.

14. (previously presented) The sample separation apparatus of claim 1, wherein said at least one detector comprises a field effect transistor.

15. (previously presented) The sample separation apparatus of claim 1, wherein said at least one detector comprises a voltage application component and a current detection component.

16. (previously presented) The sample separation apparatus of claim 1, further comprising a processor on said substrate.

17. (previously presented) The sample separation apparatus of claim 1, further comprising a memory device on said substrate.

18. (previously presented) The sample separation apparatus of claim 1, further comprising a migration facilitator in communication with at least one of said at least two porous regions.

19. (previously presented) The sample separation apparatus of claim 18, wherein said migration facilitator comprises a pump in communication with a first end of said at least one porous region.

20. (previously presented) The sample separation apparatus of claim 19, further comprising a control valve situated between said pump and said first end.

21. (previously presented) The sample separation apparatus of claim 18, wherein said migration facilitator comprises a vacuum source operatively in communication with a second end of said at least one porous region.

22. (previously presented) The sample separation apparatus of claim 18, wherein said migration facilitator comprises a first electrode adjacent said first end of said at least one porous region and a second electrode adjacent a second end of said at least one porous region.

23. (original) he sample separation apparatus of claim 22, wherein said first electrode is a cathode.

24. (original) The sample separation apparatus of claim 22, wherein said second electrode is an anode.

25. (previously presented) The sample separation apparatus of claim 1, further comprising a stationary phase disposed in at least one of said matrices.

26. (original) The sample separation apparatus of claim 25, wherein said stationary phase comprises a capture substrate.

27. (original) The sample separation apparatus of claim 26, wherein said capture substrate comprises an antibody.

28. (original) The sample separation apparatus of claim 26, wherein said capture substrate comprises an antigen.

29. (previously presented) The sample separation apparatus of claim 1, further comprising a sealing element situated over at least a portion of at least one of said at least two porous regions.

30-110 (Canceled).